CLAIMS:

1. A Radio Frequency (RF) power amplifier comprising:

a transconductance stage adapted to receive an input RF voltage signal and to produce an output RF current signal;

a cascode stage adapted to receive an input RF current signal and to produce an output RF voltage signal; and

an AC coupling element coupled between the transconductance stage and the cascode stage and operable to AC couple the output RF current signal of the transconductance stage as the input RF current signal of the cascode stage.

2. The RF power amplifier of claim 1, wherein the transconductance stage comprises a linear transconductance element and a circuit element that together couple between a transconductance stage voltage supply and a ground.

3. The RF power amplifier of claim 2, wherein:

the linear transconductance element comprises a transistor; and

the circuit element comprises an inductor.

4. The RF power amplifier of claim 3, wherein:

a first terminal of the inductor couples to the transconductance stage voltage supply;

a second terminal of the inductor couples to a drain of the transistor;

a source of the transistor couples to the ground; and

the input RF voltage signal couples to a gate of the transistor.

5. The RF power amplifier of claim 2, wherein the transistor is one of a metal oxide silicon transistor, a field effect transistor, and a bipolar junction transistor.

6. The RF power amplifier of claim 1, wherein the cascode stage comprises a first circuit element, a transistor, and a second circuit element coupled between a cascode stage voltage supply and a ground.

7. The RF power amplifier of claim 6, wherein a gate of the transistor is adapted to receive a controllable cascode bias voltage.

8. The RF power amplifier of claim 6, wherein:

the first circuit element comprises a first inductor; and

the second circuit element comprises a second inductor.

9. The RF power amplifier of claim 8, wherein:

a first terminal of the first inductor couples to the cascode stage voltage supply;

a second terminal of the first inductor couples to a drain of the transistor;

a first terminal of the second inductor couples to a source of the transistor;

a second terminal of the second inductor couples to the ground;

a gate of the transistor is biased by a cascode bias voltage; and

the output RF voltage signal is produced at the drain of the transistor.

10. The RF power amplifier of claim 6, wherein the output RF voltage signal has an operational range extending from less than the ground to greater than the cascode stage voltage supply.

11. The RF power amplifier of claim 1, wherein the transconductance stage voltage supply differs from the cascode stage voltage supply.

12. The RF power amplifier of claim 1, wherein the transconductance stage voltage supply and the cascode stage voltage supply are at approximately the same voltage level.

13. The RF power amplifier of claim 1, wherein the AC coupling element comprises a capacitor.

14. A Radio Frequency (RF) power amplifier comprising:

a transconductance stage adapted to receive an input RF voltage signal and to produce an output RF current signal, wherein the transconductance stage comprises an inductor and a transistor, a series combination of the inductor and a drain and a source of the transistor coupled between a transconductance stage voltage supply and a ground;

a cascode stage adapted to receive an input RF current signal and to produce an output RF voltage signal, wherein the cascode stage comprises a first inductor, a transistor, and a second inductor, a series combination of the first inductor, a drain and a source of the transistor, and the second inductor couple between a cascode stage voltage supply and a ground; and

an AC coupling element coupled between the transconductance stage and the cascode stage and operable to AC couple the output RF current signal produced by the transconductance stage as the input RF current signal of the cascode stage.

15. The RF power amplifier of claim 14, wherein of the transconductance stage:

a first terminal of the inductor couples to the transconductance stage voltage supply;

a second terminal of the inductor couples to the drain of the transistor;

the source of the transistor couples to a ground; and

the input RF voltage signal couples to a gate of the transistor.

16. The RF power amplifier of claim 14, wherein of the cascode stage, a gate of the transistor is adapted to receive a controllable cascode bias voltage.

17. The RF power amplifier of claim 14, wherein of the cascode stage:

a first terminal of the first inductor couples to the cascode stage voltage supply;

a second terminal of the first inductor couples to the drain of the transistor;

a first terminal of the second inductor couples to the source of the transistor;

a second terminal of the second inductor couples to the ground;

a gate of the transistor is biased by a cascode bias voltage; and

the output RF voltage signal is produced at the drain of the transistor.

18. The RF power amplifier of claim 14, wherein the output RF voltage signal has an operational range extending from less than the ground to greater than the cascode stage voltage supply.

19. The RF power amplifier of claim 14, wherein the transconductance stage voltage supply differs from the cascode stage voltage supply.

20. The RF power amplifier of claim 14, wherein the transconductance stage voltage supply and the cascode stage voltage supply are at approximately the same voltage level.

21. The RF power amplifier of claim 14, wherein the AC coupling element comprises a capacitor.

22. A Radio Frequency (RF) power amplifier comprising:

a differential transconductance stage adapted to receive a differential input RF voltage signal and to produce a differential output RF current signal;

a differential cascode stage adapted to receive a differential input RF current signal and to produce a differential output RF voltage signal; and

a differential AC coupling element coupled between the differential transconductance stage and the differential cascode stage and operable to AC couple the differential output RF current signal of the differential transconductance stage as the differential input RF current signal of the differential cascode stage.

23. The RF power amplifier of claim 22, wherein each portion of the differential transconductance stage comprises a linear transconductance element and a circuit element that together couple between a transconductance stage voltage supply and a ground.

24. The RF power amplifier of claim 23, wherein of the differential transconductance stage:

each linear transconductance element comprises a transistor; and

each circuit element comprises an inductor.

25. The RF power amplifier of claim 22, wherein each portion of the differential cascode stage comprises a series combination of a first inductor, source and drain terminals of a transistor, and a second inductor biased between a cascode stage voltage supply and a ground.

26. The RF power amplifier of claim 25, wherein of the differential cascode stage, gates of each transistor are adapted to receive a controllable cascode bias voltage.

27. The RF power amplifier of claim 22, wherein the differential transconductance stage and the differential cascode stage are powered at differing voltage supply levels.

28. The RF power amplifier of claim 22, wherein the differential transconductance stage and the differential cascode stage are powered at a common voltage supply level.

29. The RF power amplifier of claim 22, wherein each portion of the differential AC coupling element comprises a capacitor.

30. A method for amplifying a Radio Frequency (RF) signal comprising:

receiving an input RF voltage signal;

producing an output RF current signal based upon the input RF voltage signal using a transconductance stage;

AC coupling the output RF current signal as an input RF current signal to a cascode stage; and

producing an output RF voltage signal based upon the input RF current signal using a cascode stage.

31. The method of claim 30, further comprising controlling a cascode bias voltage applied to the cascode stage.

32. The method of claim 30, further comprising powering the transconductance stage and the cascode stage at differing voltage supply levels.

33. The method of claim 30, further comprising powering the transconductance stage and the cascode stage at a common voltage supply level.